water through the stems of submerged aquatics. To call such a stream "the transpiration current" is manifestly absurd, unless one changes the meaning of the word transpiration. It will be remembered that others have found evidence of like movements, so that these new experiments only add somewhat clearer evidence as to its existence, which the most elementary consideration of the physical conditions would lead one to expect. Yet these authors naïvely say: "Probably external conditions also affect the results; this point we hope to investigate later." This really is the fundamental point: does not the heating of the leaves create the conditions for the circulation of water as truly in this case as in a house heating system?—C. R. B.

Fixation of free nitrogen.—POLLACCI reports in a preliminary note[39] that in a large number of experiments he has demonstrated the fixation of free nitrogen in such plants as lichen, salvinia, azolla, fern prothallia, and duckweed. The increase of total N in a few cases cited amounts to 33–67 per cent. The full paper will be awaited with interest. POLLACCI has a heavy weight of adverse evidence to counterbalance. He indicates that the contradictory results of the earlier observers, e. g., BOUSSINGAULT and VILLE, were probably due to differences in the capacity of different plants for this fixation. It is to be remembered, however, that all the recent evidence under improved chemical methods is adverse to the idea that ordinary plants are able to utilize N_2.—C. R. B.

Prothallium and embryo of Danaea.—CAMPBELL[40] has made a preliminary investigation of the prothallium and embryo in several species of Danaea secured in Jamaica. The archegonia are remarkable for the imperfect development of the ventral canal cell, which in many cases could not be demonstrated at all. The fertilized egg becomes elongated in the direction of the axis of the archegonium before the first division. The hypobasal cell does not divide or there is a single division, resulting in a short suspensor, all of the regions of the embryo arising from the epibasal cell. This cell gives rise to somewhat irregular quadrants, the two lower ones forming the foot, and the two upper giving rise to stem tip and leaf, and later to the root.—J. M. C.

Chromosomes of Hyacinthus.—Miss HYDE[41] finds that in Hyacinthus in the prophase of the heterotypic mitosis the spirem twists into 8 loops which become 8 chromosomes. The loops break apart at the center so as to form 8 bivalent chromosomes. When fully formed, the chromosomes show a striking difference in size, 4 being comparatively large, 3 small, and the remaining one intermediate.

---

[39] POLLACCI, G., Ricerche sull' assimilazione dell' azoto atmosferico nei vegetali. Atti Ist. Bot. Univ. Pavia II. **13**:351–354. 1909.

[40] CAMPBELL, D. H., The prothallium and embryo of Danaea. Preliminary note. Annals of Botany **23**:691. 1909.

[41] HYDE, EDITH, The reduction division in the anthers of *Hyacinthus orientalis* Ohio Naturalist **9**:539–544. *pl. 32.* 1909.